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ABSTRACT

A study was commissioned by the British Columbia (BC) Ministry of Education to determine the number of students enrolled in transfer programs at the 14 BC community colleges who actually transfer to senior institutions. The study involved identifying all BC community college students (both full- and part-time) who were enrolled in transfer programs in Fall 1978 and then determining if their names appeared on the enrollment files of the BC colleges and universities in Fall 1979. The study revealed that, of the 17,181 students enrolled in academic programs in Fall 1978, a year later, 16.3% were attending a university: 1.3% had transferred to another community college or technical institute: 22.7% were still enrolled at their original college: and 63.3% were classified as "non-transfers," that is, were unaccounted for in the matching of computerized enrollment files. While approximately two-thirds of these non-transfers were not engaged in any type of post-secondary education, the remainder were still pursuing an educational interest, though a different one than that which brought them to the community college. The study report outlines the limitations of the matching process and discusses the implications of the findings. The study report includes data tables, illustrating transfer and retention rates for each of the colleges, and the results of a validity check on the matching procedures. (JP)

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TRANSFER RATES:
A STUDY OF STUDENT FLOWS FROM THE ACADEMIC PROGRAMS IN B.C. COMMUNITY COLLEGES

Prepared for

B.C. Ministry of Education
and the
Academic Council of British Columbia

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I. INTRODUCTION

From the beginning of the community college system in British Columbia in 1965, a major emphasis has been placed upon the "university transfer" function of the curriculum in the colleges. Much of the argument advanced to generate community support for a local college was the opportunity which would be provided for young people in the region to complete the first two years of a university degree, without the financial and psychological commitment of moving to a university. While the role and function of British Columbia's community colleges have evolved in the ensuing fifteen years, the "university transfer" aspect of the curriculum has retained a consistently high profile.

Recent studies[1] have produced statistics which indicate that, despite the relatively large enrolments in the "university transfer" programs, only a small percentage of these students actually transfer to a university. While the data are subject to many caveats, to some observers the situation creates a degree of concern.

One of the more common reactions to the phenomenon described above is that this low transfer rate is not particularly critical. It has been assumed that many students originally enrolled in academic programs for personal satisfaction or to explore their educational options for the future. In this context there is very little real commitment by students to university transfer as a primary goal. In fact, many observers[2] claim that one of the major justifications for a college education is to provide an opportunity for self evaluation in terms of personal goals.

[1] Dennison, John D., University Transfer Program in the Community College, Canadian Journal of Higher Education, Volume VIII - 2, 1978, 27-28.

[2] While there are many articles addressed to this topic the most frequently quoted is by Burton R. Clark, "The Cooling-Out Function in Higher Education. American Journal of Sociology, May 1960, Vol. 65.

Notwithstanding the variety of hypotheses on this issue, it seems important that some systematic attempt be made to determine why students enroll in colleges in general, and in academic programs in particular. Included within such a study would be an assessment of the degree to which students change their goals and of the students' evaluation of the college experience.

In November 1979 such a study was initiated by the B.C. Ministry of Education at the request of the Academic Council. B.C. Research was commissioned to undertake the project. This document is one of the reports issued as part of that study. It focusses upon only one aspect of the academic programs in the colleges, namely the "university transfer" function and, in particular, student transfer rates. For a discussion of the broader study and its overall objectives, the reader is referred to the main report from the project, "A Follow-up Study of Non-Transfer, Academic Students from the British Columbia Community Colleges" - Technical Report."

II. THE TRANSFER RATE STUDY

The study outlined in this report has been designed for one major purpose:

- to monitor the behaviour of students who enroll in the "university transfer" or "academic" programs of the fourteen British Columbia Community Colleges with respect to the number who transfer to other institutions or who discontinue their studies after or during their college experience.

The procedure used in the study involved the total individual student enrolment in all academic or university transfer programs in community colleges throughout B.C. in September 1978, as a base line. This total enrolment includes all students, part-time and full-time, in both first and second years of the academic programs at the date stated. Academic programs are defined as distinct from career/technical, vocational, community education, college preparatory and pre-college upgrading programs. In some colleges, academic, general education and liberal studies are used in slightly different categories from "university transfer". For the purpose of the study here, these titles are used interchangably. While the intention was to include all fourteen B.C. community colleges, one college, North Island College, had not submitted information required for their participation by the cut-off date.

Using the foregoing population as a point of reference, the status of all students in September 1979 was determined. This status was established by examining the enrolment files of the academic programs of all the colleges and universities in B.C. and the enrolment file of the B.C. Institute of Technology. In addition, students who were continuing their academic studies at their original college were identified. This process permitted the original September 1978 population to be classified as "transfers", "still enrolled" and "unknown".

As part of the broader study referred to in the previous chapter, the "unknown" group was surveyed using a follow-up questionnaire. As a result of the responses to these questionnaires this "unknown" group could be further sub-divided into "attending an unspecified university" and "non-transfer".

III. RESULTS

In past years, the numbers of academic transfer students moving from a community college to a B.C. university have been documented through a series of "articulation studies" carried out by B.C. Research[3]. These studies, however, did not indicate the flow of students between colleges. This transfer characteristic is therefore updated and expanded by this study. Table 1 provides a summary of this college to college flow.

Table 2 summarizes the numbers of students transferring to other types of post-secondary institutions. While the labelling of most of the columns is obvious, two may require explanation. "Multiple enrolment" refers to the small number of students who are taking a course or courses at more than one institution concurrently, i.e. they could be taking courses at both U.B.C. and Vancouver Community College. This number has to be subtracted from the totals of other columns to reach the original "N".

"Non-transfer" refers to students not enrolled in the academic program at any institution, including their original college. They may have withdrawn during the previous academic year or completed their year at college and not re-enrolled. It is known that some of these students have changed to a career/technical or vocational program, others are out in the work force.

Table 3 summarizes one further aspect of the data from a different perspective. It may be argued that the students still enrolled in their original college might be considered to be "neutral" when determining transfer percentages. In other words, the more appropriate figure on those transferring to a university, for example, should be calculated as a percentage only of those students not currently enrolled in their original college.

[3]Dennison, John D., Jones, Gordon and Forrester, Glen C. B.C. Community Colleges Articulation Study, University Achievement, Reports 33, 34, and 35. Vancouver, British Columbia: B.C. Research, September 1979.

TABLE 1

TRANSFER OF ACADEMIC STUDENTS BETWEEN COLLEGES, SEPTEMBER 1978 TO SEPTEMBER 1979

College Attended September 1978	College Attended September 1979: Camosun	Capilano	Cariboo	Douglas	Malaspina	New Caledonia	Okanagan	Selkirk	Vancouver	Fraser Valley	Northwest	East Kootenay	North Island	Northern Lights	Sub-total	Total Sept. 1978 Enrolment
Camosun	162	2	1	2	2	0	0	0	1	0	1	0	-	0	171	1,298
Capilano	0	421	2	2	0	0	1	2	13	0	0	0	-	0	441	1,621
Cariboo	0	1	230	0	0	0	3	0	2	1	1	0	-	0	238	1,008
Douglas	1	2	0	1,023	2	1	0	0	28	6	1	0	-	0	1,069	3,940
Malaspina	1	1	0	1	315	1	0	0	2	0	0	0	-	0	321	1,285
New Caledonia	0	0	0	0	1	224	1	0	3	0	1	0	-	2	232	842
Okanagan	2	3	0	2	0	0	112	2	5	1	0	0	-	0	127	1,110
Selkirk	1	1	0	0	1	0	2	80	1	0	0	0	-	0	86	601
Vancouver	1	8	0	19	2	1	0	0	919	1	2	0	-	0	953	3,643
Fraser Valley	0	0	3	6	0	0	1	0	3	292	0	0	-	0	305	955
Northwest	0	0	0	0	0	0	0	1	3	0	49	0	-	0	53	410
East Kootenay	0	0	0	0	0	0	0	1	1	0	0	35	-	0	37	191
North Island*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Northern Lights	1	0	0	1	0	2	0	0	1	1	0	0	-	30	36	277
TOTAL*	169	439	236	1,061	323	229	120	86	982	302	55	35	-	32	4,069	17,181

* North Island college did not participate in the study and is therefore not included in the totals.

TABLE 2

ENROLMENT STATUS AS OF SEPTEMBER 1979 OF COLLEGE STUDENTS ENROLLED ON THE ACADEMIC PROGRAM IN SEPTEMBER 1978

College*		Enrolled September 1978	Enrolment Status as of September 1979										
			Attending University								Still Enrolled Original College	Multiple Enrolment	Non-Transfers
			UBC	SFU	UVIC	Unspecified**	Sub-Total	BCIT	Other Colleges	Total Transfers			
Camosun	N	1,298	18	10	96	61	185	2	9	196	162	11	951
	%		1.4	0.8	7.3	4.7	14.3	0.2	0.7	15.1	12.5	0.8	73.3
Capilano	N	1,621	85	95	9	68	257	13	20	290	421	6	916
	%		5.2	5.9	0.6	4.2	15.9	0.8	1.2	17.9	26.0	0.4	56.5
Cariboo	N	1,008	47	16	21	27	111	6	8	125	230	2	655
	%		4.7	1.6	2.1	2.7	11.0	0.6	0.8	12.4	22.8	0.2	65.0
Douglas	N	3,940	179	161	10	53	403	29	41	473	1,028	12	2451
	%		4.5	4.1	0.3	1.3	10.2	0.7	1.0	12.0	26.1	0.3	62.2
Malaspina	N	1,285	34	9	68	29	140	1	6	147	315	8	829
	%		2.6	0.7	5.3	2.3	10.9	0.1	0.5	11.4	24.5	0.6	64.5
New Caledonia	N	842	33	14	9	32	88	1	8	97	224	4	525
	%		3.9	1.7	1.1	3.8	10.5	0.1	1.0	11.5	26.6	0.5	62.4
Okanagan	N	1,110	49	23	41	77	190	11	15	216	112	1	783
	%		4.4	2.1	3.7	6.9	17.1	1.0	1.4	19.5	10.1	0.1	70.5
Selkirk	N	601	26	7	19	47	99	2	6	107	8	1	415
	%		4.3	1.2	3.2	7.8	16.5	0.3	1.0	17.8	13.3	0.2	69.7
Vancouver	N	3,643	309	118	20	78	525	48	34	607	919	5	2122
	%		8.5	3.2	0.5	2.1	14.4	1.3	0.9	16.7	25.2	0.1	58.2
Fraser Valley	N	955	24	30	6	45	105	5	13	123	292	8	548
	%		2.5	3.1	0.6	4.7	11.0	0.5	1.3	12.9	30.6	0.8	57.4
Northwest	N	410	2	5	6	10	23	0	4	27	49	1	335
	%		0.5	1.2	1.5	2.4	5.6	0.0	1.0	6.6	12.0	0.2	81.7
East Kootenay	N	191	3	0	2	11	16	0	2	18	35	0	138
	%		1.6	0.0	1.0	5.8	8.4	0.0	1.0	9.4	18.3	0.0	72.3
North Island	N	-	-	-	-	-	-	-	-	-	-	-	-
	%	-	-	-	-	-	-	-	-	-	-	-	-
Northern Lights	N	277	0	3	6	17	26	0	6	32	30	0	215
	%		0.0	1.1	2.2	6.1	9.4	0.0	2.2	11.6	10.8	0.0	77.6
Total*	N	17,181	809	491	313	555	2,168	118	172	2,458	3,897	57	10,883
	%		4.7	2.9	1.8	3.2	12.6	0.7	1.0	14.3	22.7	0.3	63.3

* North Island College did not participate in the study and is therefore not included in the totals.

** Estimate derived from students responding to the follow-up survey who indicated that they were currently enrolled at a university. The specific university was not identified and may well be outside the province in many cases. Since these figures reflect only those students responding to the questionnaire, they should be viewed as an under-estimate.

TABLE 3

TRANSFER RATES ADJUSTED FOR STUDENTS CONTINUING AT THE SAME COLLEGE

College*		Number of Students Not Enrolled in Original College September 1979	Students Enrolled at a University	Students at another Community College	Total Transfers to Colleges, Universities and BCIT
Camosun	N	1,136	185	9	196
	%		16.3	0.8	17.3
Capilano	N	1,200	257	20	290
	%		21.4	1.7	24.2
Cariboo	N	778	111	8	125
	%		14.3	1.0	16.1
Douglas	N	2,912	403	41	473
	%		13.8	1.4	16.2
Malaspina	N	970	140	6	147
	%		14.4	0.6	15.2
New Caledonia	N	618	88	8	97
	%		14.2	1.3	15.7
Okanagan	N	998	190	15	216
	%		19.0	1.5	21.6
Selkirk	N	521	99	6	107
	%		19.0	1.2	20.5
Vancouver	N	2,724	525	34	607
	%		19.3	1.2	22.3
Fraser Valley	N	663	105	13	123
	%		15.8	2.0	18.6
Northwest	N	361	23	4	27
	%		6.4	1.1	7.5
East Kootenay	N	156	16	2	18
	%		10.3	1.3	11.5
North Island	N	-	-	-	-
	%		-	-	-
Northern Lights	N	247	26	6	32
	%		10.5	2.4	13.0
Total*	N	13,284	2,168	172	2,458
	%		16.3	1.3	18.5

*North Island College did not participate in the study and is therefore not included in the total.

In the context of the foregoing, Table 3 shows the percentage of students from the original population base who have transferred to a university, after subtracting the number of students who continue their initial enrollment at the college. The other columns were similarly derived.

IV. OBSERVATIONS

A) Caveats to be Considered

Before attempting to draw any conclusions from the data presented in this report, the following factors should be noted:

1. Enrolment status in September 1979, as defined in the study, includes only those students enrolled in academic programs in selected public tertiary institutions in British Columbia. It will not include students continuing their education in Provincial Institutes, in private institutions or in career/technical or vocational programs other than at B.C.I.T. Generally, it will also not include students continuing their education outside the province with the possible exception of those enrolled in universities who managed to receive the follow-up questionnaire and chose to respond.

2. The time frame of the data is only one calendar year, 1978-to 1979. Presumably, many students may enroll or re-enroll in various institutions after spending undetermined periods of time in other activities.

3. It must be re-emphasized that the base population includes all students, part-time and full-time, in any year or level of study in "academic" programs at the colleges in September 1978.

4. The "non-transfer" population includes students who have withdrawn from their programs at various times during the year as well as students who may have completed one or more semesters of study at the college. However, these students have not continued their education in formal academic programs during September 1979.

5. This study involves the status determination of individual students. Previous studies have been based upon gross enrolment data at a number of time phases. The accuracy and specificity of the data is increased by employing the procedure used in this study.

6. It may be argued that many students enrolled in a college in September 1978 would not be eligible for transfer to a university in September 1979, particularly if they were part-time students. There is no way of addressing this possibility. However, some students could conceivably transfer after only one course at college, depending upon their academic status.

7. Despite the carefully designed procedures for gathering data regarding student flow throughout the post-secondary educational system, it became apparent, at several stages of the study, that certain problems were inevitable. Some of these difficulties are described below:

   a) The files of student names submitted by the colleges, universities and the technical institute and utilized in the study to determine the transfer groups were not always completely accurate. Some students were placed on the "academic" program by the colleges who did not strictly meet the definition of that category. Thus, students enrolling in one course within the academic area in a college, as part of a program of study in another institution (eg. a nursing school) were included. Similarly some students who were taking a course in preparation for a field trip for general interest were also included. While it may be debated whether or not these students should have been included, the main difficulty lay in the minds of the students themselves. Often these students did not perceive themselves as having been enrolled at the college at all.

b) Difficulties were encountered in the "matching" of enrolment files between institutions. Some students used different given names, changed their names or had their previous institution identified incorrectly. As a result, the gross numbers of students reported as "transfers" by the universities did not match perfectly with the numbers identified through this study. While the discrepancies were relatively small, the effects must be recognized.

A manual validity check was carried out using Vancouver Community College data together with data from the University of British Columbia. This check is described in detail in the Appendix, demonstrating some of the causes of difficulty and the extent of the errors introduced.

c) A further breakdown of the "unknown" group was provided through the analysis of responses to a follow-up questionnaire mailed to a sample of these students. One item on the questionnaire asked the students why they did not transfer to a university. The first response option to this question allowed the students to indicate that they had in fact transferred and were currently enrolled at a university. Some 14.1% of the respondents so indicated.

There are several possible reasons for the anomoly noted above. Some students may have enrolled in universities outside the province and were therefore not identified as "transfers" by the file matching process. Others might have enrolled at university after the time frame used in the study, particularly for students at Simon Fraser University. Still others may not have been identified as "college transfers" on the university files submitted for the study.

d) It was evident, both from responses to the follow-up questionnaire items and from the comments recorded by the

students, that a number of respondents took exception to the Information Sheet title of Former College Student Follow-up". These students generally noted that they were, in fact, still enrolled at the college. This situation was caused, in part at least, by the fact that colleges reported students as still "currently enrolled" only if they continued in academic programs. Obviously several students had changed to either career/technical, vocational or continuing education programs in the same college.

B) General Observations

With the foregoing caveats having been stated, the following observations can be made:

1. Table 1 clearly shows that there is a small flow of students between community colleges. Of the 4,069 students still enrolled in a college, 172 (4%) were at colleges other than their original institution. The flow of students to Vancouver Community College accounted for 63 (37%) of these students while the flow to Douglas College made up another 33 students (19%). As might be expected, there was considerably less cross college flow from the interior and northern colleges.

2. Based on the figures from Table 2, the total academic college population of 17,181 in September 1978 produced a flow of 2,168 students (12.6%) to the universities for the following September. It should be noted, however, that this does not represent the total transfer rate from the September 1978 population. This is merely an estimate of the immediate transfers from one September to the next September.

   To further illustrate the consequences of this time restriction on the definition of transfers, figures from the University of British Columbia can be examined. From Table 2 it

TABLE 4

COLLEGE TRANSFER STUDENTS AT THE
UNIVERSITY OF BRITISH COLUMBIA, SEPTEMBER 1979

College Attended	Attended College September 1978[1] (Column I)	Attended College Prior to September 1979[2] (Column II)[3]
Camosun	18	40
Capilano	85	129
Cariboo	47	67
Douglas	179	239
Malaspina	34	52
New Caledonia	33	48
Okanagan	49	98
Selkirk	26	40
Vancouver	309	510
Fraser Valley	24	35
Northwest	2	4
East Kootenay	3	4
North Island	0	5
Northern Lights	0	0
Total	809	1,271

[1]Attended College in September 1978 on academic program and enrolled at UBC in September 1979, as identified by the procedures used in this study.
[2]Attended College prior to September 1979 and enrolled at UBC for the first time in September 1979, as reported from UBC student registration records.
[3]It should be noted that the column II figures include those figures listed in column I.

is observed that 809 students transferred to U.B.C. However, by examining the registration records at U.B.C., a total of 1,271 students can be identified as enrolling for the first time in September 1979 and having previously attended a community college in B.C. (see Table 4). This latter figure includes students who did not happen to be attending college in September 1978. Thus the total transfers to U.B.C. are considerably higher than that reflected by the immediate transfer rates.

3. An overview of the results in Table 2 shows some degree of similarity in the data from the various colleges. University transfer rates range from 6% to 17%, continuing enrollment in the original college from 10% to 30% and "non-transfer students" from 57% to 81%.

4. The "lower mainland" colleges, Capilano, Douglas, Vancouver and Fraser Valley have the highest retention rates (still enrolled at original college). While one might suggest that the colleges' location near a university might be a significant factor in the phenomenon, the figures from Camosun College which is near a university and from New Caledonia, which is not near a university, do not fit this pattern.

5. The high percentages of students who, after one calendar year, have not continued their education might be regarded as unanticipated. The particularly high rates at the "new" colleges (Northwest, East Kootenay & Northern Lights) invites further investigation of the follow-up study data.

6. Camosun College shows a pattern more akin to interior colleges with respect to rates for retention and "non-transfer" status. There is no immediate explantion for the phenomenon.

7. More than three quarters of the students transferring to B.C.I.T. came from the three lower mainland colleges, Vancouver,

Capilano and Douglas. This figure suggests that proximity is a major factor in the students' decision. It may also indicate the specific type of program available in these colleges.

8. Of all the colleges in the province, Cariboo is the most "typical" in that its figures in each category are approximately the same as the provincial average.

9. Other percentages which appear to be out of character, and hence suggests further investigation, are the low retention rates (still enrolled at original college) at Okanagan (10%) and Selkirk (13%) and the correspondingly high "non-transfer" rates, (71% and 69% respectively) at these two institutions.

10. The three "new" colleges, Northwest, East Kootenay and Northern Lights show a high similarity in pattern which is unlike the other colleges.

11. The University of British Columbia continues to attract as many transfer students as the other two universities combined. As might be expected, the majority of transfer students from Camosun and Malaspina attend the University of Victoria. Not expected was the fairly high percentage of transfer students from Okanagan and Selkirk (in comparison to other colleges) who chose the University of Victoria. Simon Fraser tends to attract students from Capilano, Douglas and Fraser Valley.

C) Implications

Finally, there are several implications arising out of the procedures used in the study and the various difficulties encountered:

1. University transfer rates, as represented in institutional enrollment files and reported in this study, are obviously conservative. While it is virtually impossible to state with perfect confidence what the exact rate of transfer to univer-

sity is, it is apparent that the figure is higher than generally indicated.

2. The category of non-transfer, when applied to students unaccounted for in the matching of enrolment files, among institutions, must be tempered with the knowledge that many of these students are still in the educational system in one form or another. While it is true that approximately two thirds of these non-transfer students were not engaged in any type of tertiary education, either formal or informal, at the time of the study, the remainder were still pursuing an educational interest, albeit a different one from that which originally brought them to the community college.

3. The results of the follow-up procedure used in the study dramatized the difficulty in making definitive statements about such phenomena as "transfer rates", "drop outs" and "normal" patterns of behaviour in an educational sense of the term. Before figures can be applied with any real confidence to the foregoing terms, it is evident that more sophisticated procedures are needed for identifying and classifying students within the educational system.

   The present policies and practices by educational institutions with regard to applications, admissions, part-time attendance, withdrawal and re-enrollment, and transfer among both program and institutions generates a plethora of patterns of student behaviour, making obsolete any definition of traditional mobility.

This particular study, recognizing the inevitable problems created by errors of data, dramatized the complications encountered in attempting to establish a monitoring process for charting student mobility within the system. On this basis alone the undertaking seems worth the effort.

APPENDIX: VALIDITY CHECK

Vancouver Community College, Langara Campus and the University of British Columbia were chosen for a manual verification check on the computer file matching procedures used in the study. Four sources of information were used to carry out this verification.

1. The data file submitted by UBC as part of the Follow-up Study, containing a list of students transferring from VCC and enrolled at UBC in September 1979.

2. The data file submitted by VCC as part of the Follow-up Study, containing a list of students enrolled at Langara Campus during the 1978/3 session.

3. A separate list obtained from the UBC registrar's office containing the names of students transferring from VCC and enrolled for the first-time at UBC in September 1979.

4. The complete registration records at VCC Langara Campus.

The computerized match process utilized in the Follow-up Study had identified a total of 309 students who were on both lists 1 and 2 (see Table 2). Of these, 26 students were listed as having also attended UBC prior to September 1979 and were therefore not first-time enrollees. Thus the computer matching had identified 283 students who were at Langara in September 1978 and who had transferred to UBC, enrolling for the first-time, in September 1979.

Upon manually checking these 283 students against the full Langara registration records (list 4), it was discovered that 10 of these matches were actually duplicate records due to students having dual VCC registration numbers. This occurred on occasions where a student had not attended the college for a period of time and then, upon re-enrolling at the college, did not communicate the [illegible] of a previous enrollment. As a result a new registration number was issued. Thus the correct number from the computer match process should have been 273 students (see Table 5).

TABLE 5
Computer Match Check

1.	Students identified by the computer matching process as having been enrolled at VCC in Sept. 78 and at UBC in Sept. 79	309
2.	Students who had also attended UBC prior to Sept. 79	26
	SUBTOTAL:	283
3.	Duplicate student records due to dual VCC registration numbers	10
4.	Correct number of students identified by computer match process as having been enrolled at VCC in Sept. 78 and enrolling for the first-time at UBC in Sept. 79	273

In order to verify the computer match process and the accuracy of the two data files represented in lists 1 and 2, attention was now turned to lists 3 and 4. List 3 contained 510 names. The student records at Langara Campus (list 4) were searched for these 510 students. Thirty-seven of these students, listed by U.B.C. as having transferred from V.C.C. to the university, were not located in the Langara files. Several assumptions were raised as possible reasons for the failure to locate these records.

1. It may be that some of the students had never enrolled at the academic campus of the college, that is, Langara, but rather had transferred directly from the vocational campus, the art school (now an independent college), or the college's upgrading campus.

2. It may be that transfer students to the university from Vancouver College, a private secondary school, were incorrectly coded as from Vancouver Community College.

3. It may be that some students felt it might help their chances of university admittance if they indicated V.C.C. as a previous institution even though they had not attended at the college.

4. There is also the possibility of clerical error in a records search, although in this case where a name was not located the first time in the search, follow-up checks for mis-filing, changes of name spelling, etc. were carried out.

Pursuing these 473 students further, the complete Langara academic records of the students were manually checked. The result indicated that 126 students had not been enrolled at Langara during the 78/3 semester. Thus, only 347 students had actually attended Langara in September 1978 and transferred to U.B.C. for the first time in September 1979 (see Table 6).

TABLE 6
Hand Search Check

1.	Total first-time students identified by UBC as having transferred from VCC	510
2.	Students not located in manual search of VCC Langara Campus files	37
3.	Actual number of Langara students enrolling for the first time at UBC in September 1979	473
4.	Students not enrolled at Langara during the 78/3 session	126
5.	Correct number of students identified by a hand search process as having been enrolled at VCC in Sept. 78 and enrolling for the first-time at UBC in Sept. 79	347

The two different processes had revealed a discrepancy of some 74 students. Further manual searching, comparing lists 1, 2, 3 and 4 identified the 74 missing students and the reasons why they had not been located during the computer match process (see Table 7).

The problems encountered fall into two main categories. First, students had been omitted during the computer match process because of incomplete data supplied by the institutions. This was likely caused by slightly variant definitions of who was to be included on the lists and as of what points in time.

Second, matching student records were not identified by the computer match process because of inconsistencies in data between the two institutions. These can be broken down into name problems and other bad data.

Name problems were created when name changes occurred between institutions. For example, the college record might indicate SMITH, Nicola, while the university record might show for the same student, SMITH, Nick. At present the computer program designed for the study is unable to determine the relationship in this example. A fairly sophisticated addition of synonyms could be added to the program in the future to hopefully overcome most of the name problems.

The problem of other bad data, although it represented only 12 students, would be far harder to correct, if not impossible. In this case, incorrect birth dates, sex, and misspelled names were found. Possible extra verification of key punching on the part of the institutions might help rectify this problem.

In summary then, the verification check showed that the computer match process, while not perfect, worked very well. It missed out only 32 transfer students due to record matching problems and double counted 10 students due to duplicate college registration numbers.

The verification check also showed that difficulties can be encountered in comparing different data sources or in comparing lists generated from the same source but through different data requests.

TABLE 7

Resolving the Discrepancies

1.	Students identified using:		
	a) Hand Search Process with lists 3 & 4		347
	b) Computer Match Process with lists 1 & 2		273
	DISCREPANCY		74
2.	Missing Data Problems:		
	a) Students identified from lists 3 & 4 who were not on the UBC list 1 used for the Follow-up Study	19	
	b) Students identified from lists 3 & 4 who were not on the VCC list 2 used for the Follow-up Study	20	
	c) Students identified from lists 3 & 4 who were not on both lists 1 & 2 used for the follow-up study	3	
	SUB-TOTAL	42	42
3.	Inconsistent Data Problems:		
	a) Name problems	20	
	b) Other bad data	12	
	SUB-TOTAL	32	32
	TOTAL:		74

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